

REMARKS

In the Office Action, the Examiner rejected claims 1, 2, 4, 5, 7-10, and 12-28. The Examiner also objected to claims 3, 6, and 11 for depending from a rejected base claim, but indicated that these claims each contain allowable subject matter. Applicant thanks the Examiner for the recognition of allowable subject matter in the present claims. While Applicant does not agree with the rejections set forth in the Office Action mailed February 2, 2007, Applicant is amending certain claims to expedite allowance of the present application. Particularly, by the present Response, Applicant amends claims 1, 3, 4, 9, 11, 12, 14, 16, 17, 22, and 24-26 to further clarify the claimed subject matter. Upon entry of the amendments, claims 1-28 will remain pending in the present patent application. Applicant respectfully requests reconsideration of the above-referenced application in view of the foregoing amendments and the following remarks.

Rejections under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1, 2, 4, 5, 7-10, and 12-28 under 35 U.S.C. § 102(e) as anticipated by Han et al. (U.S. Patent No. 6,429,532). Applicant respectfully traverses this rejection.

Legal Precedent

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). Moreover, the prior art reference also must show the identical invention “in as complete detail as contained in the ... claim” to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). Accordingly, Applicant needs only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter.

Omitted Features of Independent Claims 1, 9, 14, and 22

Turning now to the present claims, the Han et al. reference fails to disclose each element of independent claims 1, 9, 14, and 22. For instance, independent claim 1, as amended, recites “an inactive portion formed *between said active portion* and at least one *lateral edge* of said one or more lateral edges of said die” (emphasis added) and “forming a conductive path ... wherein a portion of said conductive path *is formed on said inactive portion*” (emphasis added). Independent claims 9, 14, and 22 generally contain similar recitations. Because the Han et al. reference fails to disclose such elements, the cited reference fails to anticipate these independent claims.

As will be appreciated, the Han et al. reference is generally directed to a pad design for flip chip packaging of semiconductor chips. Col. 1, lines 5-20. Exemplary embodiments of the Han et al. package include a die or chip 200 having a bonding pad 202. Col. 2, lines 33-36; FIGS. 2 and 3. A protecting layer 206 is generally formed over the die/chip 200 and the bonding pad 202, and includes a pair of windows that expose respective portions of the bonding pad 202. Col. 2, lines 36-37; FIGS. 2 and 3. In one embodiment, a solder bump 204 is coupled directly to the bonding pad 202 through one of the windows of protecting layer 206, and the other exposed portion of the bonding pad 202 may be used as a testing pad 208. Col. 2, lines 37-40; FIG. 2. In another embodiment, rather than forming a solder bump directly on the bonding pad 202, the cited reference teaches forming a redistributing layer 212 including portions 212a and 212b that are respectively used as a testing pad and a bonding pad. Col. 2, lines 43-54; FIG. 3. The Han et al. reference notes that a testing probe may engage the testing pads 208 and/or 212a, rather than solder bumps 204, thereby reducing the likelihood of damage to the solder bumps 204. *See, e.g.*, col. 2, lines 24-32.

In contrast, the present application discloses, among other things, various embodiments of semiconductor dies that include a conductive path between an input bond pad and a test pad, in which a portion of the conductive path is formed in an

inactive portion or region of the die to allow severing of the conductive path outside an active region of the die. For instance, in describing one embodiment, the present application discloses a die 12 formed on a wafer 14. *See, e.g.*, Specification, page 4, lines 10-14; FIG. 2. The exemplary die 12 includes an active portion 24 having various integrated circuitry of the die 12, and an inactive portion 26 disposed between the active portion 24 and the edges of the die 12 such that the inactive portion 26 surrounds the active portion 24. *See, e.g., id.* at page 4, lines 14-18; FIG. 2. In this embodiment, the active portion 24 includes input bond pads 16 and test pads 18, which are electrically connected via conductive paths 20 to facilitate testing of the integrated circuitry via the test pads 18. *See, e.g., id.* at page 4, line 17 – page 5, line 12; FIG. 2. Each exemplary conductive path 20 of the embodiment illustrated in FIG. 2 extends into the inactive portion 26 and a scribe area 22 to allow the conductive path to be severed at a point outside the active region once testing via the test pads 18 is completed. *See, e.g., id.* at page 5, lines 13-19; page 6, line 18 – page 7, line 22; FIGS. 2 and 3. The present application also discloses additional embodiments in which a conductive path between an input bond pad and a test pad extends into an inactive region of the die. *See, e.g., id.* at page 7, line 23 – page 9, line 20; FIGS. 4-6.

In the Office Action, the Examiner alleged that the Han et al. reference discloses each and every element of independent claims 1, 9, 14, and 22. Office Action mailed February 2, 2007, pages 2-7. Particularly, the Examiner appears to have based this allegation on FIGS. 2 and 3 of the Han et al. reference, and the associated text of the reference (col. 2, lines 33-54). *See id.* Upon careful analysis of the cited reference, however, this allegation, as well as the present rejection, is untenable.

As noted above, independent claim 1, as amended, recites “an inactive portion formed between said active portion and at least one lateral edge of said one or more lateral edges of said die” and “forming a conductive path ... wherein a portion of said conductive path is formed on said inactive portion.” Independent claims 9, 14, and 22

contain similar recitations. In the Office Action, the Examiner equated portions 212a and 212b of the redistributing layer 212 taught by Han et al. with the test pad(s) and the input bond pad(s) generally recited by the instant claims. *See, e.g.*, Office Action mailed February 2, 2007, pages 2-3. Assuming, for the sake of argument, that such equivalence is correct, Applicant notes that the portions 212a and 212b are electrically coupled by the remaining portion of the redistributing layer 212, which appears to be the only conductive path between the portions 212a and 212b in the cited reference.

The detailed description of the Han et al. reference appears to be silent as to whether the redistributing layer 212, including portions 212a and 212b, is formed on an active region or on an inactive region of the die 200. The claims of the Han et al. reference, however, disclose forming a redistributed layer (e.g., the redistributed layer 212) on an *active* surface of a chip (e.g., in the active region of the die 200). *See* col. 4, lines 15-26. The cited reference does not appear to disclose, suggest, or even contemplate forming a portion of the redistributed layer 212 in an *inactive* region of the die 200 and, as noted above, teaches quite the opposite (i.e., forming the redistributed layer 212 in the *active* region of die 200). For at least this reason, Applicant respectfully submits that redistributed layer 212 of the Han et al. reference cannot be reasonably equated with the “portion of said conductive path [] formed on said inactive portion” generally recited by the instant claims. Consequently, because the Han et al. reference fails to disclose each and every element, the cited reference cannot anticipate independent claims 1, 9, 14, and 22, or their respective dependent claims.

Omitted Features of Independent Claim 28

Further, the Han reference also fails to disclose each element of independent claim 28. For instance, independent claim 28 recites “a plurality of conductive lines ...wherein a portion of [] each of said conductive lines is formed *on a scribe area* outside the die” (emphasis added). Because the Han reference fails to disclose each and every element, the cited reference fails to anticipate independent claim 28.

In the Office Action, the Examiner argued that the Han et al. reference discloses a plurality of conductive lines each having a portion “formed on a scribe area” as recited in the instant claim. *See* Office Action mailed February 2, 2007, page 8. Particularly, the Examiner cited col. 2, lines 33-54, and FIGS. 2 and 3 of the reference as containing such a teaching. As will be appreciated by one skilled in the art, and as discussed within the present application, a scribe area is an area of a wafer that separates dies from one another. *See, e.g.*, Specification, page 1, lines 20-22; FIG. 1. As would also be appreciated, a scribe area is generally provided to allow individual dies of a wafer to be separated from one another without cutting into or otherwise damaging the dies themselves (e.g., the wafer is cut through the scribe areas without cutting into the dies). Upon careful review, however, it is evident that neither this passage of the Han et al. reference nor the associated figures includes any teaching that could be reasonably considered to disclose forming a portion of a conductive line on a scribe area.

The cited passage fails to demarcate an active region versus an inactive region of the Han et al. die 200, let alone positively identify a scribe area outside of the die 200. In fact, the passage of the reference relied upon by the Examiner completely fails to mention or even hint at a scribe area, and cannot be reasonably interpreted as disclosing a portion of a conductive line “formed on a scribe area,” as generally recited by the instant claim. Because the cited reference fails to disclose each and every element, independent claim 28 is believed allowable over the Han et al. reference. Consequently, Applicant respectfully requests that the Examiner either: (1) provide a logical explanation as to why the reference somehow discloses a portion of a conductive line formed on a scribe area (although the reference does not even mention a scribe area), or (2) withdraw the present rejection.

For at least these reasons, Applicant respectfully requests withdrawal of the rejections under 35 U.S.C. § 102 and allowance of claims 1-28.

Conclusion

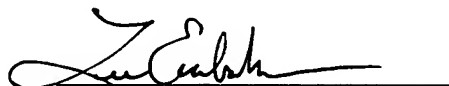
In view of the remarks and amendments set forth above, Applicant respectfully requests allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

General Authorization for Extensions of Time and Payment of Fees

In accordance with 37 C.F.R. § 1.136, Applicant hereby provides a general authorization to treat this and any future reply requiring an extension of time as incorporating a request thereof. The Commissioner is authorized to charge any additional fees which may be required to Deposit Account No. 06-1315; Order No. MICS:0214/FLE (01-0596).

Respectfully submitted,

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